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AUTHOR Bauch, Jerold P.
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INSTITUTION George Peabody Coll. for Teachers, Nashville, TN. Betty Phillips Center for Parenthood Education.
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ABSTRACT

A study was conducted to implement and evaluate the Transparent School Model for improving parent involvement in nine Indiana schools. The Model uses computer-based voice messaging to exchange information between teachers and parents. Teachers record a brief message for parents that describes what was taught, special learning events, homework assignments, and other vital information. Parents can call and hear the message at any time from any phone. Teachers can also record messages for parents that will be stored in the computer system and automatically delivered by phone to the students' homes. These "outcalls" are used to send home good news, for organizational and emergency notification, attendance monitoring, and so on. As part of the project, the daily frequency of parent calls to each teacher's mailbox was accumulated by week, month, and year. Survey and questionnaire data were collected from about 250 teachers and 500 parents. Student achievement data from two project schools and two control schools were also analyzed. Results indicated that the project schools that showed high fidelity to the model and had higher levels of teacher and parent participation showed positive effects in parent attitudes, higher levels of parent-teacher interaction, and significant improvement in math and reading scores. There was also a direct relationship between teacher use of the technology and the frequency of parent-initiated contacts. (Author/HTH)

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Voice-based technology for parent involvement: Results and effects.

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Jerold P. Bauch, Director

The Betty Phillips Center for Parenthood Education
Box 81, Peabody College of Vanderbilt University

Nashville, Tennessee 37203
(615) 322-8080

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ABSTRACT

"VOICE-BASED TECHNOLOGY FOR PARENT INVOLVEMENT: RESULTS AND EFFECTS"

Jerold P. Bauch, Peabody College of Vanderbilt University

The purpose of this study was to implement and evaluate the Transparent School Model for improving parent involvement in nine Indiana schools. The Model uses computer-based voice messaging to exchange information between teachers and parents; parents can call to hear teacher messages every day. Interaction is increased by up to 800%. This paper describes the model and presents results from the project. Survey and questionnaire data were collected from about 250 teachers and 500 parents. Student achievement data from two project schools and two demographically-matched schools was analyzed using an ANOVA model, with significance set at $p < .05$.

The project schools that showed high fidelity to the model and had higher levels of teacher and parent participation showed positive effects in parent attitudes, higher levels of teacher/parent interaction and significant improvements in California Achievement Test reading and math scores. There was also a direct relationship between teacher use of the technology and the frequency of parent-initiated contacts.

This project was a part of a statewide parent involvement initiative sponsored by the Lilly Endowment of Indiana. The nine project schools are among over 1000 schools nationally using full versions or adaptations of the Transparent School Model.

Voice-based technology for parent involvement: Results and effects

In 1987, we developed a specialized application of voice-based technology to expand and improve parent involvement. The concept was called the Transparent School Model, and became the original application of computer technology to manage voice communications between schools and homes.

After several years of experimentation with various configurations, the model now uses a site-based voice messaging computer to organize and deliver time-delayed messages between teachers and parents. This model has been the prototype for the development of at least a dozen specialized computer systems to support the functions needed by virtually any school. The two primary functions are:

(1) Teachers record a brief message for parents that describes what was taught, special learning events, homework assignments and other vital information. Parents can call and hear the message at any time from any phone.

(2) Teachers can record a message for parents that will be stored in the computer system and automatically be delivered by phone to the homes of the students. These "outcalls" are used to send good news home, for organizational and emergency notification, attendance monitoring, etc.

The Transparent School Model calls for all teachers to record a 1-2 minute message for parents every school day, and to encourage parents to call

regularly. When correctly set up, at least half of the parents in the school community call *every day* to hear teacher messages. This usually accounts for an increase in school/home communications of 500-800% over all previous levels of parent communication.

The Indiana/TSM Project

The Betty Phillips Center for Parenthood Education is a research and development unit of Peabody College at Vanderbilt University. The center was awarded a grant from the Lilly Endowment to conduct an implementation and evaluation project for nine schools in three Indiana school systems. This project ran from 1991-1993. Schools were selected by the Endowment and received a "standard" implementation of the model. They used the Homework Hotline™ Communication System as the technical support system. Four elementary schools, four middle/junior high schools and one senior high school were involved in the project.

Baseline data

For several years, we have been sampling the nature and extent of parent involvement in schools using "traditional" forms of parent involvement. We have been surprised by the similarities from school to school, and the relatively narrow range of school/home communications. In most schools, written notes are the most common method that teachers communicate with parents. We found that the average number of parent contacts (of all

types) per teacher per day was between two and three (Bauch, 1992). The frequency was higher in elementary schools and dropped as children moved through high school. The Child Trends Study (Vobejda, 1994) tracked the decline in parent involvement across years in school. The percentage of parents reporting moderate or high involvement dropped from a high of 75% in elementary school to 50% by the end of high school. This phenomenon was also noted by Bracey (1992) in a large study of minority-group children. Bracey documented the reduction of parent involvement with child age, and showed that the decrease in parent involvement was associated with lower student performance (p. 492). Given the high interest and concern for parent involvement in the profession and the general public for at least 20 years, it was surprising that most schools had very infrequent communication with parents. The Indiana schools were very similar to other schools in the nation; teachers had an average rate of parent contacts of 1.81 per day before the project started.

Evaluation plan

The expressed purpose of the Transparent School Model is to expand and improve parent involvement. Step one in this process is to increase the interactions between schools and homes. After collecting baseline data in the nine project schools, we used information collected by the voice-messaging computers at each school. The daily frequency of parent calls to each teacher's mailbox is accumulated by week, month and year. These

reports were extracted from the data base and compared to the baseline interactions.

Other evaluation points for the project were an assessment of parent attitudes according to their frequency of calling, homework completion rates, and student achievement. A parent survey was distributed to a random sample of about 20% of the families in the nine school communities. Teachers completed homework forms at two data points, and student achievement was evaluated using data collected by the school systems on the California Achievement Test. Machine readable achievement test score data was only available from one of the school systems.

Fidelity to the Model

The ideal conditions for optimal effects with the Transparent School Model include a high level of school-wide commitment and for every teacher to record a high quality message for parents every school day. Because of a variety of local conditions (ranging from teacher strikes, union opposition, limited administrative leadership and low school morale) the nine schools did not meet these conditions. We grouped the schools into two groups according to a "fidelity to the model" index, and report the effects in the "higher fidelity" schools in this paper. The fidelity issue is discussed in more detail in Bauch (1994), "Innovations in parent involvement: Issues of implementation and fidelity to a model." In this report, four schools with teacher daily recording rates of from 44% to 66%

are included. As teacher recording rates drop below 100%, parents either hear "old" messages that are not current for the particular day or no information was recorded. We believe that this discourages parents from calling frequently, and parent calling rates drop in direct proportion. The differential is between 20 and 30 per cent, and is the strongest predictor of parent participation in the model.

Increased teacher/parent interaction

The Indiana/TSM Project set out to increase the frequency and richness or interaction between schools and homes. The schools had 1.81 parent contacts per teacher per day before the project was begun. In the higher fidelity schools, teachers were receiving an average of seven or eight additional calls with the voice-messaging system. This produced an average increase in school/home interaction of about 400%. Approximately 30-40% of the parents in these schools called daily to listen to teacher messages.

Parent attitudes

When parents have little or no useful information from the school, they have little or no basis for forming judgments about the program. Children are not good interpreters of the curriculum, and parents are likely to get their information from their children or from the newspaper.

Since only two or three families receive information from the classroom teacher per day, the large majority of parents are not regularly informed.

Further, some of the teacher/parent contacts are not expressly designed to help parents support their child's learning. With the Transparent School Model, teachers craft messages that describe what the children are learning, the specific home learning expectations, how parents can help and how to make the home a more educative environment. Armed with information like this, parents are much more likely to take a more active role in the education of their children. This expectation was confirmed in the Johns Hopkins study (Ames, Khoju & Watkins, 1993). They found that parents with children in high home/school communication classrooms had more positive attitudes about most aspects of education when compared to parents in low-communication classrooms. They also found that the "high-communication" parents had a stronger belief in their ability to motivate their child, and were more likely to have higher overall involvement in their child's learning.

In the Indiana/TSM project, parents who called "seldom or never" to listen to teacher daily messages had neutral to negative attitudes. As frequency of calling increased, parent attitudes became much more positive. The parents who were frequent callers had the most positive attitudes.

Homework completion

Student completion of homework is problematic, especially if parents are not involved and supportive. A recent national survey (NEA Today, 1994) reported that fully 24% of parents spend no time per day helping their children with homework. In earlier (anecdotal) observations and reports,

the first effect noticed by teachers when parents started calling for daily messages was an improvement in homework completion rates. Kearns (1993) and others also noted this effect. It seems logical that when teachers, parents and students all have the same information about homework assignments it is more likely that homework will be completed. When the entire school community is actively involved with the model, and teachers are serious about daily messages, homework rates go up. In the Indiana schools, there were no significant changes in homework completion rates. We believe that the relatively low rate of teacher recording produced a lower-than-expected rate of parent calling. Even in the "higher-fidelity" schools parent rates did not reach the 50% standard expected in the model. This reduced implementation and use may have been the deciding factor in homework rates.

Student achievement

In the present study, only one of the three school systems collected and organized student achievement data in machine-readable forms that could be retrieved and analyzed. In this school system, central office officials made demographic matches so that each school using the model could be compared to a "similar" school using traditional methods. The matching was done on size, SES, ethnicity and community location.

The California Achievement Test was administered to students in these schools for several years, so we could use student scores for at least one

year before the project started and 1 1/2 years of model use. Reading, math, language and total battery scores were used in the one-way analysis of variance. Significance was set at the 0.05 level. There was a possibility of thirty-four data points taking grade level by test score category. In the pretest data, there were significant differences in seven of these thirty-four categories. After 1 1/2 years in the project, there were significant differences in favor of model schools in sixteen categories (with five others very close to significance). Since two of the schools in this school system had the highest fidelity to the model and high rates of parent usage, it seems possible that the increased communication between school and home may have positively influenced total student achievement scores in these schools.

Summary

The Transparent School Model allows teachers to record daily messages for parents and can increase the exchange of information between schools and homes. When implemented correctly, the model can produce gains in teacher/parent interaction of several hundred percent. As parent information goes up, there is a positive effect on parent attitudes. More positive parent attitudes seem to be translated into more engagement with their children, and students in higher fidelity model schools show gains in academic achievement.

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